



PERFORMANCE MULTI-ROOM VIDEO

## Warranty

Multiplex Technology, Inc. warrants this product to be free from defects in materials and workmanship for a period of one year from the date of purchase or MTI will repair, or at its option, replace the defective product. To obtain warranty service, call MTI for a return material authorization (RMA) number and return the product prepaid to Multiplex Technology, Inc., 3001 Enterprise Street, Brea, CA 92821, Attention: Customer Service. Please put the RMA number on the outside of the carton.

Any implied warranty arising from the sale of the product including implied warranties of merchantability and fitness for purpose are limited to the warranty stated above. MTI shall not be responsible for losses or damages or expenses, whether direct, consequential or incidental arising from the use of or the inability to use this product. Some states do not allow limitations on how long the implied warranty lasts or the exclusion or limitation of incidental or consequential damages, so the above limitations and exclusions may not apply to you. This warranty gives you specific legal rights, and you may have other rights which may vary from state to state.

Model  
3015/3025

"All-In-One"  
Multi-room Video Distribution System

## INSTALLATION GUIDE

This device complies with the FCC's Part 15 Rules for TV interface devices. Any change or modification to this device without the permission of Multiplex Technology, Inc. may void the user's authority to operate this equipment.

## Patent Notice

Products protected by U.S. Patent No. 5,384,603 and others pending. Also protected by U.S. Patent No. 4,509,211; Taiwan Patent No. 25,991; United Kingdom Patent No. 2,140,182 with Hong Kong Registration 224; Canada Patent No. 1,200,024; and other patents issued and pending, all of these are licensed by Multiplex Technology, Inc. from Xantech Corporation.

# Introduction

Thank you for selecting the ChannelPlus model 3015/3025 multi-room video distribution system. The 3015 is a single-input modulator and the 3025 is a dual-input modulator. The 3015/3025 will provide crisp, clear pictures from one or two video sources and the antenna or cable at four or five viewing locations within the home.

As an added benefit, the ChannelPlus model 3025 can be upgraded to provide infrared remote control of the two video sources from any TV location.

## Unpacking & Inspection

### **Caution: Read all instructions before installing.**

Each ChannelPlus model 3015/3025 multi-room video distribution system is carefully tested and inspected prior to packaging. Its construction is robust. The 3015/3025 will provide many years of great service, but please remember that it is a very sophisticated piece of electronic equipment and it should be handled with care. The 3015/3025 is not designed to be used outside; it should be installed in a clean, dry location.

humidity:

5% to 90% non-condensing

### **Agency-Approvals**

safety: UL, CSA for power module  
EMI/EMC: FCC, part 15

### **Performance**

signal inputs:

<b>Model 3015</b>	<b>Model 3025</b>
two (2)	three (3)
one (1) RF input	one (1) RF input
one (1) video input	two (2) video inputs

signal outputs:

four (4)	five (5)
4 equal outputs	2 local, 3 distance
(with L+R audio)	(with L+R audio)

**Note:** With the Model 3025, all outputs support IR operation of remote devices when connected to a target assembly.

RF carriers:

frequency ranges:

stability:  $\pm 5$  kHz

UHF 14 to 64  
CATV 65 to 125 (excluding 95-99)  
channel width: 6.0 MHz  
audio offset: 4.5 MHz  
sidebands: double

RF power output:

modulator: 12.0 dBmV nominal (4000 $\mu$ V)  
15.5 dBmV max (5670 $\mu$ V)  
CATV/antenna: 6.0 dB straight gain from input

video performance:

differential gain: 4%, typical  
differential phase error: 4°, typical

signal to noise ratio:

55 dB, typical

spurious output:

-57dBC min outside carrier  $\pm 12$ MHz

rejection:

50dB min isolation inside the carrier  $\pm 12$ MHz

input signal level:

video: 1.0 volt peak-to-peak into 75 $\Omega$   
audio: 2.8 volt RMS max into 47k $\Omega$

## Common Questions

### Can an amplifier be used on an output to drive signals over longer cable paths?

No. The IR remote control feature will be defeated if an external amplifier is used.

### Can a splitter be used on one or more outputs in order to add more TVs?

No. The model 3015/3025 Multi-room Video Distribution System is a pre-engineered system providing optimum signal levels to each TV for clear, crisp picture quality. Each time a splitter is added, there is lowering of signal level called insertion loss. Insertion losses upset system performance. Additionally, the IR remote control feature will be defeated.

### Can I change from off-air antenna to cable without problems?

Yes. Even though cable channels are set at different frequencies than off-air channels, ChannelPlus model 3015/3025 will work with either. If you change from one signal source to the other, you will have to retune the system following the procedures of this manual.

## Specifications

### General

size: height: 172 mm (6.8 in)  
width: 140 mm (5.5 in)  
depth: 51 mm (2.0 in)

weight: 1.19 kg (2 lbs 10 oz)

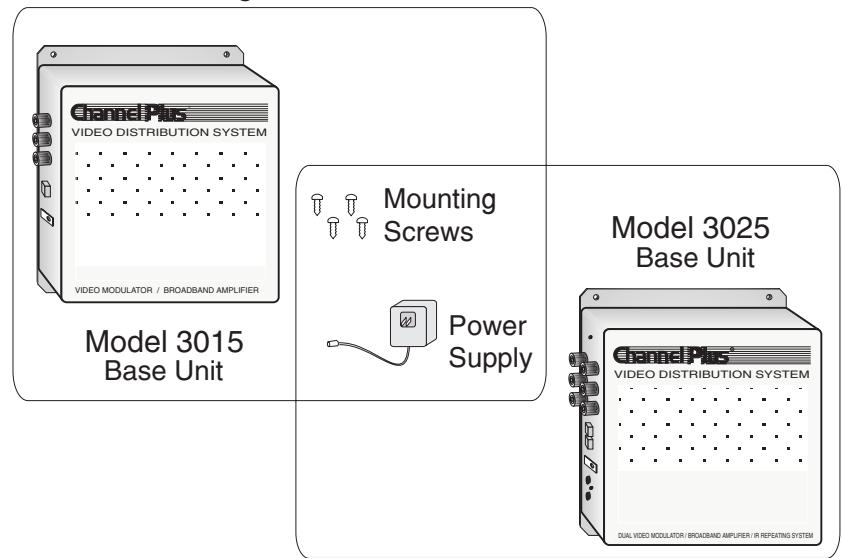
power: transformer input : 115 VAC, 60 Hz  
transformer output: 15 VDC, 300mA  
consumption: 7 Watts, typical

### Environment

temperature: operating: 0°C to 50°C (32°F to 122°F)  
storage: -30°C to 50°C (-22°F to 122°F)

## Inspection

The ChannelPlus model 3015/3025 multi-room video distribution system consists of a base unit, a power supply, and four mounting screws.



**Base Unit:** the 3015 base unit accepts the video and audio outputs from a video device (VCR, laser disc player, satellite receiver, video camera, etc.) and creates one "in-house" television channel for it. The 3025 base unit accepts the video and audio outputs from two video devices and creates two "in-house" television channels for them. Both units amplify an input from an off-air antenna or cable service. Using RG6 coax cable, the output of the 3015 can be connected to four TV receivers up to 150 feet of cable. The output of the 3025 can be connected to up to five TV receivers with two with a maximum of 35 feet of cable, and three with a maximum of 150 feet of cable.

**Power Supply:** the ChannelPlus model 3015/3025 is designed to operate from a 15 VDC power supply. Use only the model 350-076 power supply provided. The power supply will make the necessary voltage conversions when connected to 115 VAC, 60 Hz power.

## Other necessary items:

**Coaxial Cable:** Sufficient coaxial cable type RG6 is needed to connect each of the TVs in the home to the ChannelPlus model 3015/3025 (RG59 can be used, but picture performance may be compromised). Coaxial cable is available two ways: in bulk or in pre-cut lengths. With bulk cables, type "F" connectors must be attached to each end. After reading all the instructions and reviewing the various diagrams, the number of cables required and their proper lengths can be determined.

**Video Cables (a.k.a. VCR Cables):** One or two sets of these cables are required to connect the one or two video devices (VCR, satellite receiver, laser disc player, video camera, etc.) to the ChannelPlus model 3015/3025. Each cable has an RCA-style connector on each end. A set consists of three cables, a yellow for video, a red for right audio, and a black or white for left audio. These sets generally come in three or six foot lengths.

## "House" video channels problems

**No picture:** verify that the video source is on and is producing a video signal. Check that the TV and the 3015/3025 are tuned to the same channel. For example, if the 3015/3025 is broadcasting on UHF channel 16, make sure the TV is on UHF 16 rather than CATV 16. UHF 16 and CATV 16 are different channels. If the TV has a separate UHF input, be sure that it is connected.

**Poor picture quality:** If the picture quality is poor due to "hum bars" or "noise," then there is probably interference coming from either a local off-air station or from noise on the cable. Connect the cable service or antenna directly to a TV and observe the picture. If it is anything other than pure snow, the user must either change to a different channel or add a filter. If a clear channel cannot be found, ChannelPlus filters are available from the same source for ChannelPlus products.

## Infrared Remote Control Problems

**Infrared remote control does not work:** (Model 3025 only) Check the red IR data light on the left side of the base unit.

**Light on:** If the light is on, one or more IR targets is receiving electrical or optical noise. At the base unit, begin to disconnect the outputs to the TVs until the red LED goes off. Then, reposition the probable target before connecting the coax to the base unit.

**Light off:** With the aid of a helper, operate an IR remote in front of each target while observing the IR data light. A blinking data light indicates proper operation. If all targets appear to be functioning properly, reposition the emitters. Be sure the emitters are in front of the IR sensor of the video source.

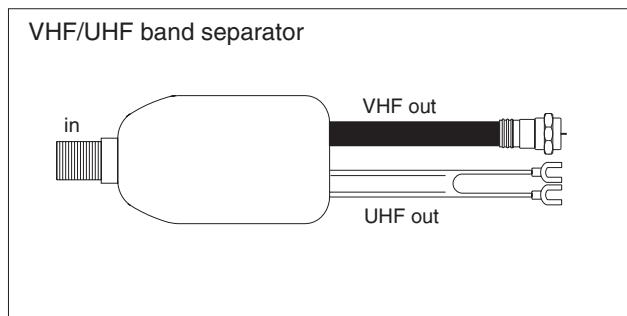
23. Put a tape in the VCR. Press *Play* on the remote control, then press *Pause*. If everything works OK at the main TV location, go to step 24.
24. Now go to each distant TV equipped with a ChannelPlus model 2133. Tune the TV to the VCR channel. Aim the VCR's remote control at the ChannelPlus model 2133 target, and press *Play*, *Pause*, *Rewind*, etc. The VCR should respond as if you were standing in front of it. If it does not, see The Trouble Shooting Guide.

## Trouble Shooting Guide

### Cable or antenna channel problems

**Grainy cable or antenna channels:** This usually means that the signal is weak and an RF amplifier is needed. Please consider one of the amplifiers described on page 4.

**No or weak UHF:** Check rear of TV, if there are separate VHF and UHF input terminals. Verify that the UHF terminal is connected. If not, add a band separator.



**"Herringbones"** : When most or all channels have "herringbone" distortion, the signal may be too strong. If an amplifier is being used remove it from the system. Otherwise, use an in-line attenuator.

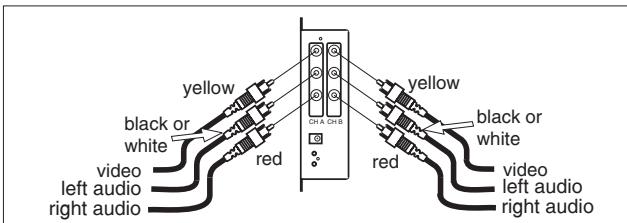
## Installation Instructions

1. The existing video equipment and television system must be functioning correctly **prior** to installing the ChannelPlus model 3015/3025. Ensure that all antenna or cable signals are being received at least at the main TV before proceeding with this installation.
2. Determine whether local programming is supplied from a cable service (CATV) or from an off-air antenna.

**Note: Keep written notes on this step to use in step 11.**

- a. **If cable:** determine the highest channel number delivering a picture, excluding channels 95-99. Tune the TV up one channel at a time from the last channel with a picture until finding two non-adjacent channel numbers, each with no trace of a picture or other interference - just snow. If no clear channels can be found, consult the Trouble Shooting Guide on page 12.
- b. **If antenna:** tune the TV one channel at a time from channel 14 through 64. Write down the channel number of each channel which has no trace of a picture or other interference - just snow.
3. Select an installation location for the base unit which satisfies all of the following conditions:
  - a. close to the video sources
  - b. close to the antenna input or cable input
  - c. has a 110 VAC outlet within easy access
  - d. is clean and dry and likely to stay that way
4. Fasten the base unit to the desired location using the screws provided. The orientation is not critical.

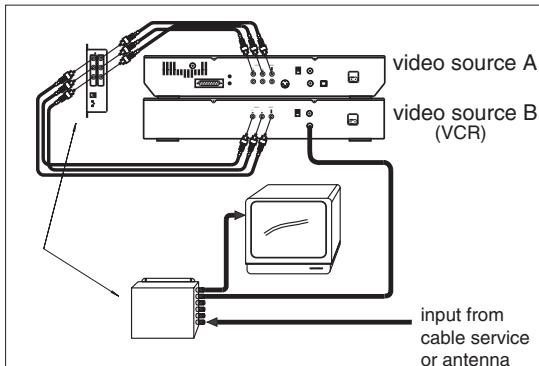
5. Connect the video source to the CHANNEL A INPUTS and the second video source (Model 3025) to the CHANNEL B INPUTS.



6. Connect the coaxial cable from the antenna or the cable service to the base unit connector labeled ANT/CATV INPUT.

7. Connect the main TV to the base unit using a coax cable between the TV's input and the base unit's output connector. On Model 3025, connect to output connector labeled LOCAL TV.

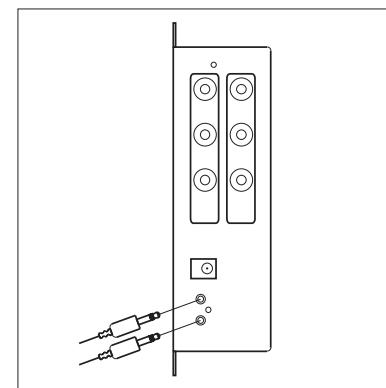
8. Connect the main VCR to the main unit using a coaxial cable between the VCR's input and the output connector. On Model 3025, connect to output connector labeled LOCAL VCR. Alternatively, this output can be used to provide signals to another television set.



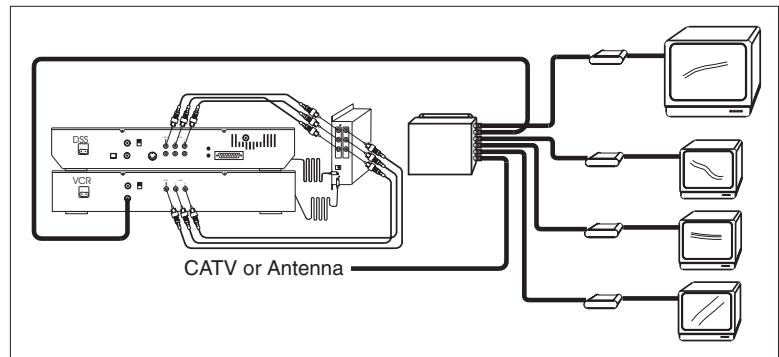
19. Run a short piece of coaxial cable from the output of the remote target model 2133 to the RF input of the TV (again, see previous illustration).

20. Repeat steps 17 through 19 at each distant TV location where IR remote control is desired.

21. Connect the IR repeater/emitters, model 2173, to the base unit (see illustration below). Use the adhesive on the IR emitter to hold it in place in front of the remote sensor window on the first "house" video source. Repeat this procedure for the second video source.



22. The completed system should look like the following illustration.



can be used to enter HRC/IRC settings. It will not affect the already programmed channel assignments.

#### 16. **Optional IR Remote Control (Model 3025 only)**

Either or both of the "house-channels" video sources can be remotely controlled from any or all distant TV locations. For example, the user in the master bedroom can stop, pause, fast-forward the VCR located in the family room. In order to do this, additional IR equipment from your ChannelPlus supplier is needed.

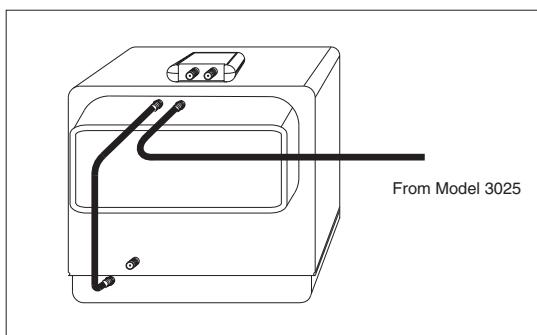
#### **IR Remote Target. Model number 2133.**

One ChannelPlus IR remote target model 2133 for each TV location where IR remote control is desired.

#### **IR Repeater/Emitter, model 2173**

One or more model 2173 IR repeater/emitter is required depending on the number of "house-channels" video sources to be controlled.

17. Attach a remote target, model 2133, to the side or top of the TV using the adhesive-backed feet. See below.
18. Disconnect the cable from the RF input on the rear of the TV, and reconnect it to the input to the model 2133. See below.

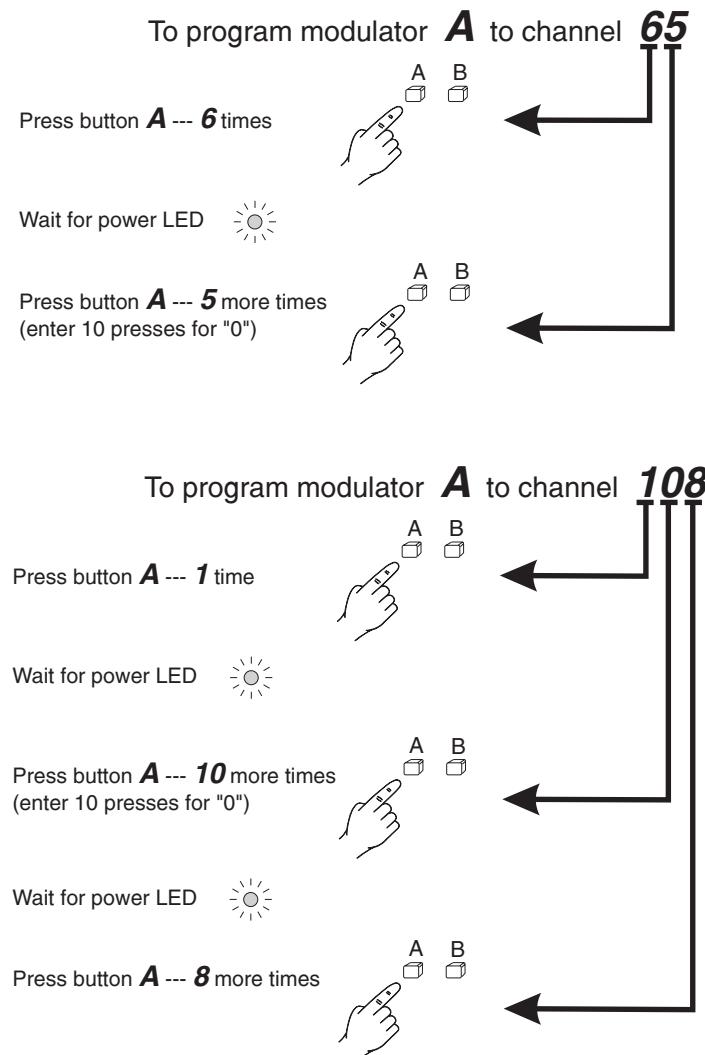


9. Connect the output of the power supply to the base unit and plug the power supply into a 110 VAC wall outlet. The green LED power indicator should illuminate.
10. Turn on the main TV. The mode of the TV (CATV or antenna) will determine the "in-house" channel that will be used for viewing the two video sources.
11. Select the "in-house" channel numbers referring to notes made during step 2. These numbers will be needed in step 13. Select a channel for the second video source even if only one is being used.
  - a. For CATV: select two unused channel numbers, provided that they are at least one unused channel apart from one another, and at least one unused channel above the last channel with picture.
  - b. For antenna: select two unused channel numbers provided that they are at least one unused channel away from one another and at least one unused channel away from a channel with picture.

**Note:** CHANNEL A and CHANNEL B must be separated by at least one unused channel.

12. Tune the TV to the channel number selected for CHANNEL A. The TV or picture should be blank or just plain snow. Turn on the channel A video source.
13. Program the model 3015/3025 video channel A to the "in-house" channel number selected in step 11.

programming example:



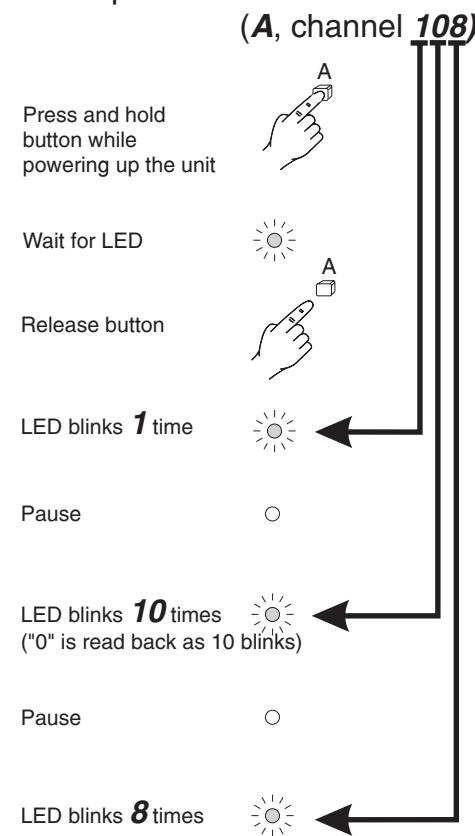
If an error has occurred, the LED will flash quickly for a second and return to the previous settings. On Model 3025, if two adjacent channels are selected, the unit will accept the entry but the LED will blink continuously.

14. (Model 3025) Repeat step 13 using the second video source and the selected channel B number from step

11. If there is no second source, set CHANNEL B to any unused channel.

15. The ChannelPlus model 3015/3025 provides a readback mode to display the channel assignments.

Read back example:



### Cable HRC and IRC considerations

Most cable services use IRC frequency assignments. This is the default for the ChannelPlus model 3015/3025. However, if the cable service uses HRC or the TV appears to search for the "house channels," the 3015/3025 can be reprogrammed to use HRC assignments by entering channel 98. Set the IRC by entering a 99. Both of these settings are only used for setting HRC/IRC. **Note:** Either channel A or B